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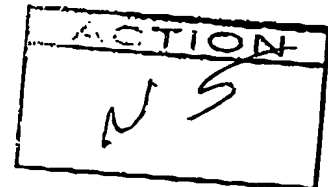
**Commissioner of Patents**  
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Acting on behalf of the  
International Preliminary Examining Authority

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4 June 2004

Our Ref.: 642256C:GMT:EIG  
Telephone Contact: Edward Genocchio

Attention: S. Ghosh  
Examiner



Dear Madam

Re: International (PCT) Patent Application No. PCT/AU03/01125  
Colin William Francis  
Title: A Pier

This is further to your telephone conversation with Edward Genocchio of 13 May, 2004.

When reviewing the application we noted an error in Figure 2 of the drawings which is inconsistent with Figure 1. As can be seen, the drive head 23 sits on top of sleeve 17. The drive head 23 does not have a knob on its top face or a hollow within as incorrectly shown in Figure 2 and correctly shown in Figure 1. This obvious error in the drawing translated to an obvious error on page 3 and claims 4 and 8. A further error was noted in claims 6 to 8 where the word "wherein" was missing unlike all other claims. Corresponding amendments are also proposed for page 2. It is submitted that the errors are obvious. In fact, they have also been located by the same examiner on the corresponding Australian case AU 2003257241. A clear and marked up copy of the amendments are enclosed.

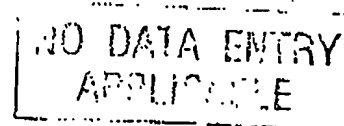
It is noted that the IPER issued without any Written Opinions having been sent. Accordingly, we request the reopening of the International Preliminary Examination to address these amendments and for a further IPER to issue. (PCT/GL/ISP/1 at paragraphs 19.25 and 19.26 and under Rule 91.1).

We look forward to hearing from you.

Yours faithfully  
**SPRUSON & FERGUSON**

GREG TURNER  
Registered Patent Attorney

Encl.



said sleeve is operatively associated with said shaft so that rotation of said compaction member causes rotation of said shaft to thereby drive said auger member.

Preferably the pier includes a drive assembly to move the compaction member relative to the shaft.

5 Preferably said drive assembly includes a threaded rod threadably engaged with said shaft and operatively associated with said compaction member so that upon rotation of said rod said compaction member is caused to move relative to said shaft.

10 Preferably, said drive assembly includes a head attached to an upper portion of said rod and via which said rod is driven, and a nut mounted internally of said sleeve and fixed thereto, with the rod threadably engaged with the nut so that rotation of the head causes the nut to apply a force to said compaction member to cause said compaction member to move down said shaft.

Preferably, said transverse portion is a plate, with said plate being provided with surfaces they are engaged to cause rotation of said compaction member.

15 Preferably, said plate is provided with a plurality of apertures which provide said surfaces.

Preferably, said plate extends generally normal to said sleeve.

20 Preferably, said shaft is square or rectangular in transverse cross-section and said sleeve is square or rectangular in transverse cross section so as to be complimentary with respect to said shaft so as to prevent relative rotation therebetween about said rod.

### Brief Description of the Drawings

A preferred form of the present invention will now be described by way of example only with reference to the accompanying drawings wherein:

Figure 1 is a schematic isometric view of a pier;

25 Figure 2 is a schematic side elevation of the pier of Figure 1; and

Figure 3 is a schematic side elevation of an insertion tool to be used with the pier of Figures 1 and 2.

### Detailed Description of the Preferred Embodiment

30 In the accompanying drawings there is schematically depicted a pier 10. The pier 10 includes an auger member 11 consisting of a shaft 12 to which there is fixed an auger blade 13. The auger blade 13 extends generally longitudinally and angularly with respect to the longitudinal axis 14 of the shaft 12. In this embodiment the auger blade 13 consists of a single convulsion.

The lower end of the shaft is provided with a drill bit 15 which aids penetration of the auger member 11 in a soil surface.

In this embodiment, the shaft 12 is generally square or rectangular in transverse cross-section, however it should be appreciated that the shaft 12 may have alternative configurations.

5 Operatively associated with the shaft 12 is a soil compaction member 16. The compaction member 16 includes a sleeve 17 that is also square or rectangular configuration so as to be complimentary with respect to the cross-section of the shaft 12. The sleeve 17 surrounds a length of the shaft 12 and is slidable therealong in a longitudinal direction relative to the axis 14.

10 Attached to the sleeve 17 and extending generally transverse thereof is a compaction part 18, in this embodiment the part 18 is a plate that extends generally normal to the axis 14. Preferably, the compaction part 18 is attached to the sleeve 17 by means of a weld 19.

The compaction part 18 is braced by means of a plurality of flanges or webs 20 that extend between and are attached to the compaction part 18 and sleeve 17.

15 In this embodiment the shaft 12 is hollow and has positioned within it a nut 21. The nut 21 is fixed to the shaft 12 so as to be stationary relative thereto. The nut 21 has a threaded longitudinal passage 22 that is threadably engaged by a threaded rod 23. The rod 23 extends upwardly from the nut 21 through the sleeve 17 to terminate at its upper end with a drive head 23. The drive head 23 bears against a projection of the compaction part 18.

20 Rotation of the head 23 about the longitudinal axis 14 causes movement of the compaction part 18 relative to the shaft 12 in the direction of the axis 14. In this respect, it should be appreciated that the sleeve 17 slides over the shaft 12.

The compaction part 18 includes a plurality of apertures 26 that provide surfaces 25 via which the compaction member 16 is driven about the longitudinal axis 14.

25 In use of the above described pier 10, the surfaces 25 are engaged so that the compaction member 16 is driven rotationally in the direction of the arrow 27. This rotation of the compaction member 16 drives the auger member 11 so that the shaft 12 enters a ground surface. At a desired depth driving of the shaft 12 ceases. Thereafter the head 23 is rotatably driven so that the compaction member 16 is moved in the direction of the arrow 28. The compaction part 18 engages the soil surface and compacts the soil surface surrounding the shaft 12.

30 The pier 10 is removable if so required. To remove the pier 10 the head 23 is rotated in the opposite direction removing the flanges 20 from the soil layer. Thereafter

**CLAIMS:**

1. A pier to be driven into an earth surface to support a structure to be mounted thereon, said pier including:

an auger member including a shaft that is rotated in a first direction to drive the  
5 auger member into the ground surface;

a soil compaction member to compact soil around the shaft, said compaction member including a sleeve surrounding the shaft and movable relative thereto longitudinally of the shaft, and a transverse part extending laterally from and attached to the sleeve to engage the soil surrounding the shaft so that upon downward movement of  
10 the compaction member relative to the shaft soil surrounding the shaft is compacted; and wherein

said sleeve is operatively associated with said shaft so that rotation of said compaction member causes rotation of said shaft to thereby drive said auger member.

2. The pier of claim 1 wherein, the pier includes a drive assembly to move  
15 the compaction member relative to the shaft.

3. The pier of claim 2 wherein, said drive assembly includes a threaded rod threadably engaged with said shaft and operatively associated with said compaction member so that upon rotation of said rod said compaction member is caused to move relative to said shaft.

4. The pier of claim 3 wherein, said drive assembly includes a head  
20 attached to an upper portion of said rod and via which said rod is driven, and a nut mounted internally of said sleeve and fixed thereto, with the rod threadably engaged with the nut so that rotation of the head causes the nut to apply a force to said compaction member to cause said compaction member to move down said shaft.

5. The pier of any one of claim 1 to 4 wherein, said transverse portion is a plate, with said plate being provided with surfaces they are engaged to cause rotation of said compaction member.

6. The pier of claim 5 wherein said plate is provided with a plurality of apertures which provide said surfaces.

7. The pier of claim 6 wherein said plate extends generally normal to said sleeve.  
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8. The pier of claim 7 wherein said shaft is square or rectangular in transverse cross-section and said sleeve is square or rectangular in transverse cross section so as to be complimentary with respect to said shaft so as to prevent relative  
35 rotation therebetween about said rod.

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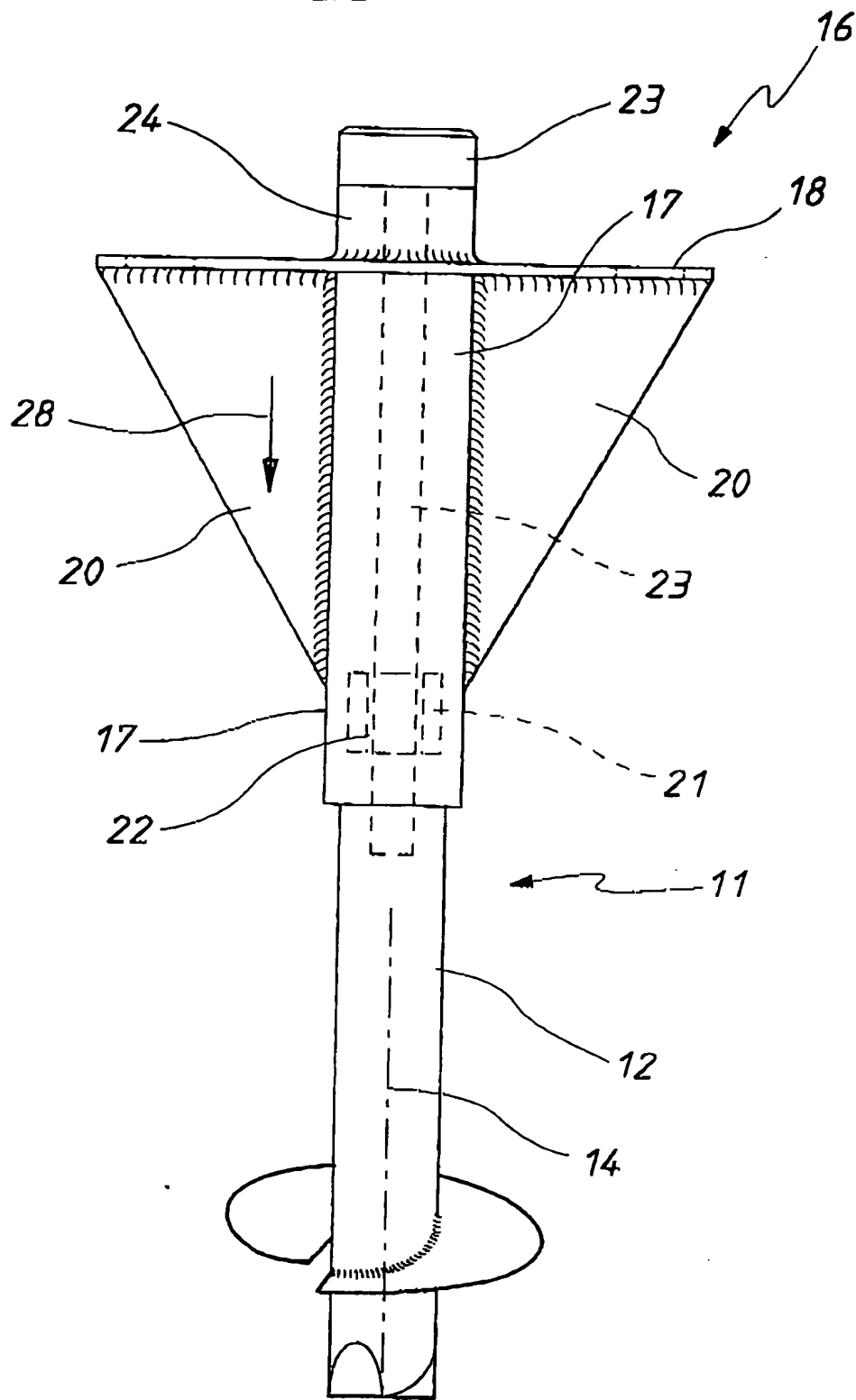


FIG. 2

said sleeve is operatively associated with said shaft so that rotation of said compaction member causes rotation of said shaft to thereby drive said auger member.

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3. The pier of claim 2 wherein, said drive assembly includes a threaded rod threadably engaged with said shaft and operatively associated with said compaction member so that upon rotation of said rod said compaction member is caused to move relative to said shaft.

20 4. The pier of claim 3 wherein, said drive assembly includes a head attached to an upper portion of said rod and via which said rod is driven, and a nut mounted internally of said sleeve and fixed thereto, with the rod threadably engaged with the nut so that rotation of the head causes the nut to apply a force to said compaction member to cause said compaction member to move down said shaft.

25 5. The pier of any one of claim 1 to 4 wherein, said transverse portion is a plate, with said plate being provided with surfaces they are engaged to cause rotation of said compaction member.

6. The pier of claim 5 wherein said plate is provided with a plurality of apertures which provide said surfaces.

30 7. The pier of claim 6 wherein said plate extends generally normal to said sleeve.

8. The pier of claim 7 wherein said shaft is square or rectangular in transverse cross-section and said sleeve is square or rectangular in transverse cross section so as to be complimentary with respect to said shaft so as to prevent relative rotation therebetween about said rod.  
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